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Assignment 07

<https://github.com/EChoi26/DBFoundations-Module07>

Introduction to User-Defined Functions: Overview of scalar, Inline and Multi-Statement Functions

While SQL-based databases offer several built-in functions, User-Defined Functions (UDFs) allow users to create custom functions tailored to specific needs. UDFs are categorized into three types: Scalar, Inline Table-Valued, and Multi-Statement Table-Valued Functions, each with unique properties that warrant different uses.

UDFs can be utilized to return a single value, known as a scalar function. Additionally, UDFs can be employed with a Check Constraint, enabling validation of a column's value based on data from another table, a capability that is otherwise unavailable without a custom scalar function (Root, n.d.).

A Scalar UDF returns a single value, which can be a string, number, or date (Gould, n.d.). In MS SQL, the schema name must be specified when using Scalar UDFs (Root, n.d.). Inline Functions, on the other hand, are a type of Table-Valued Function (TVF) that return a table as a result of a single query (Gould, n.d.). Meanwhile, Multi-Statement Functions, another form of TVF, generate a table of data through multiple queries. These functions allow for additional processing, such as the inclusion of parameters, and must be enclosed within BEGIN and END statements.

In summary, UDFs can return a single value, known as a scalar function, or a table of data through TVFs. Scalar UDFs return a single value, such as a string, number, or date, and in MS SQL, require specifying the schema name. Inline Functions, a type of TVF, return a table through a single query, while Multi-Statement Functions generate a table using multiple queries and allow additional processing with parameters. Multi-Statement Functions must also be enclosed within BEGIN and END statements.